

NOTE ON THE USE OF HYDROBROMIC ACID IN NERVOUS AFFECTIONS.*

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HYDROBROMIC acid has been before the profession for several years, it having been first employed by Dr. Dewitt C. Wade,¹ in 1875. Since then Dr. Milner Fothergill has recommended it. Dr. E. T. Reichert² has studied its effects upon the nervous system of animals and found it to depress the reflex functions of the spinal cord like the bromides. He did not study its effects upon the brain. Descriptions of the drug are not to be found, however, in most of the therapeutical text-books, and Phillips,³ as late as 1882, states that its real value has yet to be determined.

It has been used by the profession chiefly with quinine, under the belief that it prevents or lessens cinchonism. The only extended record of clinical observations regarding it that I can find is one by Massini published two years ago.⁴ He used it in thirty-one cases of various kinds. In a few cases of neuralgia, migraine, hypochondria, melancholia, it

* Read at the annual meeting of the American Neurological Association, June 22, 1883.

¹ *Peninsular Medical Journal*, Feb., 1875; *Boston Med. and Surg. Journal*, civ, p. 505.

² "U. S. Dispensatory," 15th ed., p. 64.

³ "Materia Medica and Therapeutics," vol. i, p. 120.

⁴ *Correspondenzbl. f. Schweiz Art.*, Sept., 1881.

did no good. In twenty-two other cases of insomnia, irritable heart, cerebral congestion, headache, and spermatorrhœa it acted successfully. He did not use it in epilepsy.

I was led to experiment with hydrobromic acid in the hopes that it would have the beneficial effects of the alkaline bromides in epilepsy without causing depression and scurvy.

Pure hydrobromic acid (H Br, atomic weight, 80.8) contains in one hundred parts, by weight, 99 parts of bromine. One drachm of the pure acid is equal in bromine amount to about 90 grains of bromide of potassium, 175 grains of bromide of sodium, 66 grains of bromide of lithium, 73 grains of bromide of calcium, 71 grains of bromide of ammonium.¹

Hydrobromic acid or hydrogen bromide, therefore, contains more bromine proportionately than any other of the bromine compounds, and is united with an innocuous metal.

The average dose of the pure acid, assuming that the medicinal and chemical equivalents are the same, would be

¹ One drachm potassium bromide, contains	66 % bromine
" " sodium " "	78 % "
" " lithium " "	92 % "
" " hydrogen " " (hydrobromic acid) 99 %	"

The exact ratios can be calculated from the following table:

The Bromides.	Atomic Weight.	Atomic Weight of the Constituents.	Proportion of bromine.
1 H Br	80.8	1 : 79.8	^{79.8} _{80.8}
2 K Br ₈₀	118.8	39 : 79.8	^{79.8} _{118.8}
3 Na Br	102.8	23 : 79.8	^{79.8} _{102.8}
4 Li Br	86.8	7 : 79.8	^{79.8} _{86.8}
5 Ca Br ₂	199.6	40 : 159.6	^{159.6} _{199.6}
6 Cd Br ₂	271.6	112 : 159.6	^{159.6} _{271.6}
7 Ce ₂ Br ₆	682.8	184 : 498.8	^{498.8} _{682.8}
8 C ₂ H ₅ Br (Bromide of Ethyl)	108.8	24.5 : 79.8	^{79.8} _{108.8}
9 Fe Br ₂	215.6	56 : 159.6	^{159.6} _{215.6}
10 Hg ₂ Br ₂	559.6	400 : 159.6	^{159.6} _{559.6}
11 C ₁₀ H ₁₆ Br O	230.6	79.6 : 151	Monobromated Camphor
12 Zn Br ₂	224.5	64.9 : 159.6	
13 N H ₄ Br	97.8	18 : 79.8	
14 C Br ₄	331.2	12 : 319.2	
15 I Br	206.8	127 : 79.8	

from ten to twenty drops. The officinal dilute acid is a ten-per-cent. solution, of which the dose would be 3 i to 3 ii ss, well diluted.

I have now used hydrobromic acid in the treatment of various nervous affections for nearly two years. At the Northeastern Dispensary the druggist informs me that the amount prescribed for the class of nervous diseases exceeds three pounds a month. I have used it in over fifty cases, of which I have notes, besides others.

These cases were :

Epilepsy	6	tric, cerebral)	12
Alcoholism	2	Chorea	2
Headache, congestive	1	Insomnia	3
Headache (malarial)	4	Hysteria	3
Spermatorrhœa	2	Post-hemiplegic cere-	
Vertigo	6	bral (vascular) dis-	
General nerve-weakness		turbances	3
(nervousness)	6	Senile melancholia	1
Various forms of neurasthenia (sexual, gas-		Paralysis agitans	1
Total			52

Hydrobromic acid in epilepsy.—When I first began to use hydrobromic acid in epilepsy, I was greatly encouraged by the result. The first of my six cases was a most obstinate one, a young man of twenty, who had suffered from grand mal and petit mal since his ninth year. He had run the gauntlet of several nerve-clinics in the city, and had been assaulted by all the anti-epileptic remedies in the pharmacopœia. He was having attacks every day, sometimes several in the day. Under the acid he often went for one, two, or three weeks without any fit. He was given the acid for six or seven months, in doses of 3 iv-3 v a day. After a time it began to lose its hold, and I added oxide of zinc. Finally the patient passed out of my care. He subsequently died in a convulsion.

In three succeeding cases the disease was much milder, and the attacks came on only once or twice a month.

In these cases the acid stopped the fits for a time at least, and as long as they were under my care. I subsequently lost sight of them.

In two remaining cases there was no great benefit. Both of these patients suffered from both the *grand mal* and *petit mal*, and were old and obstinate cases. One of them when put upon very large doses of bromide of sodium did better than upon the acid. In the other the acid seemed to do nearly as well as the bromide. The convulsive attacks were nearly stopped, but the *petit mal* could not be controlled.

I think that in epilepsy hydrobromic acid can not be used as a substitute for the bromides, except in the more controllable cases, when one wishes to keep up a mild sedative effect for a long time. Yet, it undoubtedly has an influence over the disease, and I do not yet feel certain that if given in equivalently large doses it might not be as efficient as the alkaline salts.

In chorea.—Hydrobromic acid can be used advantageously as a medium for the use of arsenic or *nux vomica*, when it is desired to give a sedative. Doubtless an ordinary solution of arsenious acid in hydrobromic acid is quite as good as the much-vaunted formulæ of Clemens and Gilliford.

In alcoholism.—The acid failed in two cases of acute alcoholism, the patients being on the verge of delirium tremens. Bromides and chloral subsequently gave relief.

With quinine to prevent cinchonism.—Hydrobromic acid is a good solvent for quinine, but it does not, according to my experience, prevent cinchonism, as has been asserted—certainly not in the small doses usually prescribed.

The *best results* which I have obtained from hydrobromic acid were in conditions of nervous irritability, congestive headaches, post-hemiplegic circulatory disturbances, irritable

heart, stomachal vertigo, where a general nervous and vascular sedative is indicated.

In most cases of insomnia it also acts well. I would say positively that I can give the acid with just as much confidence that it will produce nervous sedation as when the alkaline bromides are prescribed.

Its advantages are that in moderate doses it is not disagreeable; it does not constipate, or irritate the stomach; it may be given when an acid is indicated for the stomach. It can be conveniently prescribed with iron and tonics. Finally, in the largest doses, long continued, I have never seen any sign of bromism or any disagreeable constitutional effect, other than some drowsiness.

A disadvantage is that when very large doses are to be administered, the amount of acid to be taken is disagreeable.

As to the dose of hydrobromic acid, great misconception prevails. It is, I believe, customary to prescribe m. xx to 3 i of the three-per-cent. or of the ten-per-cent. solution, usually the former. This is generally much too small in amount.

Theoretically, in order to get a sedative action 3 iss to 3 iiiss of the ten-per-cent. solution must be prescribed. Practically, I find that very satisfactory sedative effects can be gotten from drachm doses of the officinal dilute solution. A very palatable prescription is as follows:

R
 Acid. hydrobromic. dil. (10 %), $\frac{3}{2}$ ij
 Tr. nucis vomicæ, m. xlvi.
 Aquæ cinnamomi, q. s. ad $\frac{3}{2}$ iv
 Sig. 3 ii, 3 to 6 times a day, in considerable water.

The iodides and alkaline bromides can not be safely prescribed in solutions of strychnia. The ten-per-cent. solution of hydrobromic acid, however, dissolves strychnia, though not readily. I have been able to dissolve gr. ss of strychnia sulphate in 3 v of dilute hydrobromic acid.

Occasionally a patient complains very much about the ascidity.

In conclusion, then, in all the milder affections for which the bromides are used, the acid can be substituted. It is, in moderate doses, agreeable, non-irritating, and will cause no eruption or other symptom of bromism. It has appeared to me to be especially efficient in producing vascular and nervous sedation in the post- and *præ-hemiplegic* conditions. Unless given in very large doses, it takes several days to get its best sedative effect.